[54] **RANDOMIZED TAG TO PORTAL COMMUNICATION SYSTEM**

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[58] Field of Search .... 340/572, 505, 573, 825.31, 340/825.32, 825.34; 343/6.8 LC, 6.5 LC

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[57] **ABSTRACT**

Communication between portal units and identification tags is accomplished by continually radiating an interrogation signal consisting of a code pattern from each portal unit followed by a listening interval. Tags within range of such interrogation signal test the incoming signals for frequency, bit duration, bit rate, a preamble code and a facility identifying code. If the tag receives a valid signal to which it has been preprogramed, such signal synchronizes and initiates a plurality of tag responses within a given overall response interval and with each response transmitted during randomly selected time slot. Each tag is provided with its own pseudorandom binary sequence generator and reply counter with the pseudorandom generator sequenced by a signal derived from the carrier signal radiated by the tag.

The portal units also test incoming signals for frequency bit rate and bit duration as well as for a preamble code generically indicative of a tag. If the test is passed, the remaining tag response consisting of an identifier and an error correcting code is accepted and passed on to a CPU.

22 Claims, 14 Drawing Figures